CLAIMS

1. A poppet valve with a heater, the valve comprising:

a valve casing including a first main port and a second main port, a flow path connecting both the main ports, and a valve seat provided in the flow path;

a cylinder connected to the valve casing;

a poppet-type valve member provided in the valve casing to open and close the valve seat;

a rod having a tip end portion connected to the valve member and a base end portion on an opposite side and extending into the cylinder;

a piston disposed for sliding in the cylinder and connected to the base end portion of the rod;

a heat-generating member disposed in a fixed position in the valve casing and having at its tip end portion a heat-transfer face with which the valve member comes in contact in an open position;

a heat-transfer member disposed for expansion and contraction in response to an operation of the valve member between the heat-generating member and the valve member to constantly transfer heat from the heat-generating member to the valve member; and

a first heater mounted to the heat-generating member.

2. A poppet valve according to claim 1, wherein a cylindrical heat receiving member surrounding the rod and having a heat-transfer property is mounted to a back face of the valve member, a heat receiving face with which the heat-transfer face of the heat-generating member comes in contact is constituted at a tip end of the heat receiving member, and the

heat-transfer member is connected to the heat receiving member and the heat-generating member.

3. A poppet valve according to claim 1, wherein the heat-generating member is in a cylindrical shape and disposed concentrically around the rod and the first heater is mounted in the heat-generating member.

4. A poppet valve according to claim 2, wherein the heat-generating member is in a cylindrical shape and disposed concentrically around the rod and the first heater is mounted in the heat-generating member.

5. A poppet valve according to claim 1, wherein the heat-transfer member is in a shape of a bellows or a coil.

6. A poppet valve according to claim 2, wherein the heat-transfer member is in a shape of a bellows or a coil.

7. A poppet valve according to claim 3, wherein the heat-transfer member is in a shape of a bellows or a coil.

8. A poppet valve according to claim 4, wherein the heat-transfer member is in a shape of a bellows or a coil.

9. A poppet valve according to claim 1, wherein a bellows is provided between a partition at an end portion of the valve casing and the valve member to surround the rod and the heat-generating member, the heat receiving member, and the heat-transfer member are housed in the bellows.

10. A poppet valve according claim 1, wherein the valve casing includes a second heater.

11. A poppet valve with a heater, the valve comprising:

a valve casing including a first main port and a second main port, a flow path connecting both the main ports, and a valve seat provided in the flow path;

a valve member provided in the valve casing to open and close the valve seat;

a rod for driving the valve member;

a heat-generating member disposed in a fixed position in the valve casing and having at its tip end portion a heat-transfer face with which the valve member comes in contact in an open position;

a heat-transfer member disposed for expansion and contraction in response to an operation of the valve member between the heat-generating member and the valve member to constantly transfer heat from the heat-generating member to the valve member;

a first heater mounted to the heat-generating member; and

a bellows provided between a partition at an end portion of the valve casing and the valve member and housing the rod, the heat-generating member, the heat receiving member, and the heat-transfer member.

12. A poppet valve according to claim 11, wherein a cylindrical heat receiving member surrounding the rod and having a heat-transfer property is mounted to a back face of the valve member, a heat receiving face with which the heat-transfer face of the heat-generating member comes in

contact is constituted at a tip end of the heat receiving member, and the heat-transfer member is connected to the heat receiving member and the heat-generating member.

13. A poppet valve according to claim 11, wherein the heat-generating member is in a cylindrical shape and disposed concentrically around the rod and the first heater is mounted in the heat-generating member.

14. A poppet valve according to claim 12, wherein the heat-generating member is in a cylindrical shape and disposed concentrically around the rod and the first heater is mounted in the heat-generating member.

15. A poppet valve according to claim 11, wherein the heat-transfer member is in a shape of a bellows or a coil.